



**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1           1. (Currently Amended) An isolation system with analog communication across an  
2           isolation barrier comprising:  
3                       an isolation barrier circuit having at least one isolation element;  
4                       a digital to analog circuit ~~having an~~ configured to provide a constant  
5           average analog output signal ~~connected~~ to the isolation barrier and having an input for  
6           receiving an input digital signal to be communicated across the isolation barrier; and  
7                       an analog to digital circuit having an input coupled to the analog  
8           output of the isolation barrier circuit for providing a digital output signal.

1           2. (Currently Amended) The isolation system of claim 1 in which said digital to  
2           analog circuit includes an encoder circuit responsive to said input digital signal to provide a  
3           digital signal, and a digital to analog converter responsive to said digital signal to provide to  
4           said isolation barrier said constant average analog output signal.

1           3. (Currently Amended) The isolation system of claim 1 in which said digital to  
2           analog circuit includes a digital to analog converter with an input for receiving said input  
3           digital signal and a modulation circuit responsive to said digital to analog converter for  
4           providing said constant average analog output signal.

1           4. (Original) The isolation system of claim 1 in which said analog to digital circuit  
2 includes an analog to digital converter responsive to said input analog signal from said  
3 isolation barrier to provide a digital signal, and a decoder circuit responsive to said digital  
4 signal to provide said digital output response.

1           5. (Original) The isolation system of claim 1 in which said analog to digital circuit  
2 includes a demodulator circuit responsive to said input analog signal from said isolation  
3 barrier, and an analog to digital converter responsive to said analog signal to provide said  
4 digital output signal.

1           6. (Original) The isolation system of claim 1 in which said analog to digital circuit  
2 includes an analog to digital converter.

1           7. (Original) The isolation system of claim 1 in which said digital to analog circuit  
2 includes a digital to analog converter.

1           8. (Original) The isolation system of claim 1 in which said digital to analog circuit  
2 includes a termination resistance connected with said isolation barrier.

1           9. (Original) The isolation system of claim 1 in which said analog to digital circuit  
2 includes a termination resistance connected with said isolation barrier.

1           10. (Original) The isolation system of claim 1 in which said isolation element  
2 includes a capacitance.

1           11. (Original) The isolation system of claim 1 in which said isolation element  
2 includes a transformer.

1           12. (Original) The isolation system of claim 1 in which said analog to digital circuit  
2 includes a common mode interference signal sensing circuit and a summing circuit for  
3 removing the common mode interference signal from the received analog signal from the  
4 isolation barrier.

1           13. (Original) The isolation system of claim 1 in which said digital signal to be  
2 communicated across said isolation barrier includes data.

1           14. (Original) The isolation system of claim 1 in which said digital signal to be  
2 communicated across said isolation barrier includes control information.

1           15. (Original) The isolation system of claim 14 in which said digital signal to be  
2 communicated across said isolation barrier includes reference and calibration information.

1           16. (Original) The isolation system of claim 1 in which said digital signal to be  
2 communicated across said isolation barrier includes data and control information.

1 17. (Cancelled)

1 18. (Cancelled)

1 19. (Currently Amended) The isolation system of claim 4 in which the input analog  
2 signal is a constant average signal.

1 20. (Currently Amended) The isolation system of claim 5 in which the input analog  
2 signal is a constant average signal.

1 21. (New) The isolation system of claim 1 in which the analog to digital circuit is  
2 configured to decode the constant average input analog signal.